Society the loss of its eminent member.—Dr. H. MOHN, President; Dr. A. JOHANNESSEN, General Secretary.

Swedish Academy of Sciences, Stockholm.—Swedish Minister, Count Wrangel, instructed to represent Swedish Academy of Sciences at Lord Lister's funeral.—DAHLGREN, President.

Prof. Treub comes to funeral ceremony Lord Lister representing the University of Amsterdam.—Rector Magnificus, Prof. WINKLER.

Dutch Medical Society, Amsterdam.—Dutch Medical Society delegates Prof. Hector Treub, of Amsterdam, to Lord Lister's funeral.—Dr. SCHREVE, Secretary.

Academy of Science, Amsterdam.—Academy Science, Amsterdam, regrets deeply cannot send delegate Lord Lister's funeral.—LORENTZ.

The Swiss Society of Natural Sciences associates with the Royal Society in its great sorrow.—SARASIN, President.

NOTES.

FOR the meeting of the British Association for the Advancement of Science, which is to be held this year at Dundee on September 4 and following days, under the presidency of Prof. E. A. Schäfer, F.R.S., the following presidents have been appointed to the various sections:—Mathematical and Physical Science, Prof. H. L. Callendar, F.R.S.; Chemistry, Prof. A. Senier; Geology, Dr. B. N. Peach, F.R.S.; Zoology, Dr. P. Chalmers Mitchell, F.R.S.; Geography, Sir Charles M. Watson, K.C.M.G., C.B., R.E.; Economic Science and Statistics, Sir Henry H. Cunynghame, K.C.B.; Engineering, Prof. A. Barr; Anthropology, Prof. G. Elliot Smith, F.R.S.; Physiology, Mr. Leonard Hill, F.R.S.; Botany, Prof. F. Keeble; Educational Science, Prof. J. Adams; Agriculture, Mr. T. H. Middleton. Agriculture will form the subject of a full section for the first time. Prof. W. H. Bragg, F.R.S., and Prof. A. Keith have been appointed to deliver the evening discourses.

THE executive committee of the British Science Guild has completed arrangements for the reading of the following papers dealing with subjects in which the Guild is taking action:—Monday, February 26, coordination of philanthropic effort, Sir Edward Brabrook, C.B.; Monday, March 11, scientific aspects of technical education, Prof. John Perry, F.R.S.; Friday, March 29, synchronisation of clocks, Major O'Meara, C.M.G. With the kind permission of the president and council of the Chemical Society, the meetings will be held in the rooms of the Chemical Society, Burlington House, Piccadilly, at 8.30 p.m.

IN reply to a question relating to agricultural research, asked in the House of Commons on Tuesday, February 20, Mr. Runciman said:—A grant of 30,000*l.* per annum will be made from the Development Fund for work at research institutes in the following subjects, viz.:—plant physiology, plant pathology (mycological side), plant breeding, fruit growing, plant nutrition, and soil problems, animal nutrition, animal breeding, animal pathology, dairy investigation, agricultural zoology, and the economics of agriculture. Negotiations are proceeding as to the places at which the work will be carried on. It is proposed to allocate an additional sum of 5000*l.* for investigations of a special character during the ensuing financial year, and I hope shortly to be in a position to announce the purposes for which this sum will be expended.

THE governing body of the Lister Institute has appointed Mr. G. Udny Yule honorary consulting statistician to the institute.

MR. CHAPMAN JONES has been elected president of the Royal Photographic Society, in succession to Lord Redesdale, and has been awarded the progress medal of the society.

ON Tuesday next, February 27, Prof. E. G. Coker will begin a course of two lectures at the Royal Institution on "Optical Determination of Stress, and some Applications to Engineering Problems."

REFERRING to the recent correspondence on glazed frost, Mr. C. Carus-Wilson directs attention to two communications by him in NATURE some years ago, viz.:—"Is Hail so Formed" (January 26, 1888) and "Super-cooled Rain Drops" (February 2, 1905).

AT Messrs. Sotheby's sale on February 19, the sum of 105*l.* was realised for the Palæolithic hornstone hammer-heads found in the bottom of an old ditch at Airdens, near Bonar Bridge, Sutherland, and described and illustrated in a paper by Dr. J. Anderson, keeper of the Scottish National Museum of Antiquities.

PROF. W. BALDWIN SPENCER, C.M.G., F.R.S., has been appointed Protector of the Aborigines in the Northern Territory of Australia. A Reuter message from Melbourne on February 15 announces that Prof. J. A. Gilruth, since 1908 professor of veterinary pathology and director of the Research Institute in Melbourne University, has been appointed Administrator of the Northern Territory by the Commonwealth Government.

THE New York correspondent of *The Times* announces that an Arctic expedition, organised by the American Museum of Natural History and the American Geographical Society, with the cooperation of Yale University and other institutions, will start in the coming summer to explore and map out the new land which Rear-Admiral Peary saw from Cape Thomas Hubbard in 1906 and named Crocker Landing. The sum of 10,000*l.* is being raised for the expedition. The expedition is to be headed by Mr. G. Borup, assistant curator of geology in the American Museum of Natural History, and Mr. D. B. MacMillan, who were both members of Admiral Peary's last Polar expedition.

A FEW months ago (September 14, 1911) we announced that an influential committee had been formed with the view of erecting a monument to Dr. J. Janssen, whose work in astrophysics is known wherever spectroscopic studies of celestial bodies are carried on. It is felt that there should be an outward and visible sign, in the form of a work of art, of the esteem in which the world of science holds Janssen's services to astronomy and civilisation. Subscriptions are solicited for this purpose, and it is hoped that the response will be both ready and generous. The officers of the organising committee are:—*President*, H. Poincaré; *vice-presidents*, B. Baillaud and G. Bigourdan; *secretary*, P. Puiseux; *treasurer*, H. Dehérain, Bibliothécaire à l'Institut, Paris, to whom contributions should be sent.

THE anniversary meeting of the Geological Society of London was held on Friday last, February 16. The officers were appointed as follows:—*President*, Dr. A. Strahan, F.R.S.; *vice-presidents*, Prof. E. J. Garwood, Dr. J. E. Marr, F.R.S., Mr. R. D. Oldham, F.R.S., and Prof. W. W. Watts, F.R.S.; *secretaries*, Dr. A. Smith Woodward, F.R.S., and Mr. H. H. Thomas; *foreign secretary*, Sir Archibald Geikie, K.C.B., President R.S.; *treasurer*, Mr. Bedford McNeill. The following awards of medals and funds were made:—Wollaston medal, Mr.

Lazarus Fletcher, F.R.S.; Murchison medal, Prof. Louis Dollo; Lyell medal, Mr. Philip Lake; Wollaston fund, Mr. C. I. Gardiner; Murchison fund, Dr. A. Morley Davies; Lyell fund, Dr. A. R. Dwerryhouse and Mr. R. H. Rastall. The president delivered his anniversary address, which dealt with the natural resources of this country in the matter of coal supply, and their probable duration.

THE death is announced, at Bergen, of Dr. G. H. A. Hansen, whose name will always be associated with the discovery of the bacillus of leprosy by him in 1871. This was almost the first micro-organism associated with disease to be recognised, antedating Koch's discovery of the tubercle bacillus by ten years. Hansen regarded leprosy as a malady of an ordinary bacterial type, and he therefore hoped for the complete extinction of the disease by the segregation of the sufferers. With this end in view, he took an active part in the organisation of leper hospitals in Norway, and although his hopes have not been completely realised, these measures have considerably diminished the prevalence of leprosy in Norway. Notwithstanding the bacillus of leprosy was recognised forty years ago, it is only within the last year or two that the artificial cultivation of the organism has attained any measure of success.

IT is officially announced that the Chancellor of the Exchequer is appointing a committee to report at an early date upon the considerations of general policy in respect of the problem of tuberculosis in the United Kingdom, in its preventive, curative, and other aspects, which should guide the Government and local bodies in making or aiding provision for the treatment of tuberculosis in sanatoria or other institutions or otherwise. The committee will consist of Mr. Waldorf Astor, M.P. (chairman), Dr. C. Addison, Dr. N. D. Bardswell, Mr. David Davies, M.P., Dr. A. Mearns Fraser, Dr. A. Latham, Dr. W. Leslie Mackenzie, Dr. J. C. McVail, Dr. W. J. Maguire, Sir George Newman, Dr. Arthur Newsholme, C.B., Dr. J. Niven, M.P., Mr. M. Paterson, Dr. R. W. Philip, Dr. H. Meredith Richards, Mr. T. J. Stafford, C.B., Miss Jane Walker, and Mr. J. Smith Whitaker. The secretary to the committee will be Mr. F. J. Willis, one of the assistant secretaries of the Local Government Board.

The Times of February 10 includes an article by its well-informed correspondent in Sydney upon the Australian water supply. The article mentions the great progress which has been made in the construction of storage reservoirs for the collection of winter floods down the rivers of the Murray System. It deals mainly with the supply from the wells in Queensland and the adjacent parts of eastern central Australia, and refers to the large volumes of water yielded by some of these wells at a comparatively slight cost. Many of the bore waters cannot be used for irrigation, as they are heavily charged with salts; and though it has long been known how some of the injurious alkalies could be converted into useful plant foods, these methods have not yet been applied in practice. The article recognises that the supply from the bores tends to fall off, and that some have ceased altogether. It has recently been discovered that the water of one of the bores is radioactive, which gives support to the view that some of the water is of plutonic origin. That gas pressure helps in the outflow of the well waters has been recently shown by chemical analyses. It may be hoped that the attention now being given in Australia to this great subterranean supply of water will lead to the alteration of the old policy, whereby many of the wells were allowed to run to waste.

DR. A. P. LAURIE gave his opening lecture as professor of chemistry in the Royal Academy on February 19. His subject was "Pigments Old and New, and their Value in Detecting Forgeries." He began by describing the list of pigments which were in use at the time of Pliny. He then went on to point out what pigments had been introduced in addition to these at various times in the history of art up to the present day, such as the discovery of the preparation of real ultramarine, the introduction of lakes prepared with alum, and the introduction in more recent times of such pigments as chrome yellow, cadmium yellow, artificial ultramarine, cobalt blue, and oxide of chromium green. He then proceeded to discuss the question of how far these pigments could be identified in pictures without injuring the picture, first by means of a microscopic examination of the surface with the assistance of the microspectroscope, and by actual but minute tests made upon the surface of the pigments, and then by the removal of very small portions by means of delicate tools at a scale much finer than that required for surgical operations on the eye, these minute portions to be mounted in paraffin and cut in sections to be microscopically examined and tested. A systematic plan for the identification of blues when mixed with white lead was shown, and many photomicrographs, on Lumière plates, of pigments magnified to 200 diameters. In conclusion, the photomicrographs of the pigments actually found on an illuminated missal letter of the fifteenth century were shown on the screen, and the means of identifying them explained. Finally, some account was given of the mediæval methods and the treatise of the monk Theophilus.

WE record with regret the death of Mr. George Maw, which occurred at Kenley, Surrey, on February 7. Born in 1832, Maw was a manufacturer of artistic tiles and pottery at Broseley, Shropshire, where he formed a remarkable collection of living hardy plants. With wide scientific interests, Maw gave especial attention to botanical, geological, and antiquarian problems. His earlier studies dealt with English botany; in 1853 he discussed the plants of the Taw, Tamar, and Torridge Valleys; he discovered *Lilium pyrenaicum*, in a naturalised condition, near Molton, S. Devon. To enrich his garden he travelled widely in the mountains of Europe, Asia Minor, and North Africa; he discovered *Draba Mawii* on the Spanish Sierra Nevada, and *Saxifraga Maweana* on the mountains above Tetuan. In 1871 he accompanied Sir J. D. Hooker and Mr. J. Ball in an expedition to North Africa, and discussed the geology of the country traversed in the well-known work "Marocco and the Great Atlas," published by Messrs. Macmillan in 1878. About 1875 Maw began to concentrate his attention on the genus Crocus, as to which he became the recognised authority; in search of its species he travelled much in Greece and Asia Minor. After preliminary systematic and horticultural notices, Maw issued, in 1886, a magnificent monograph of Crocus containing quarto plates of sixty-seven species drawn and coloured by himself. Then his health gave way; in May, 1886, he left Shropshire, and had lived in retirement at Kenley ever since. Maw was a fellow of the Linnean society, which he joined in 1860, of the Geological Society, and of the Society of Antiquaries.

THE trial of Galileo formed the subject of the third lecture delivered on February 14 at University College by the Quain professor of comparative law (Sir John Macdonnell), on comparative legal procedure as illustrated by historical trials. From the report in *The Times* of the following day it appears that the lecturer justly rejected the legend that Galileo was thrown into a dungeon and tortured, while the truth is that, considering the usual mode of procedure of the Inquisition, he may almost be said to have been treated somewhat leniently. Too much stress should probably not be laid on the proceedings at Rome in 1616, as Galileo at the trial in 1633 was not mainly convicted because he had acted contrary to the engagement he had entered into seventeen years before not to teach or defend the Copernican doctrine, but because (as the sentence distinctly stated) he had made himself suspected of heresy. Galileo did not deny that he had in 1616 been officially informed that the theory of the earth's motion must not be taught as a physically true one, and he acknowledged that he had in his "Dialogue" expressed himself in such a manner that the reader might think that he believed Copernicus to be right. Sir John Macdonnell thinks that if the question had arisen a few years earlier or later, it is possible that the doctrine might not have been forbidden. But it should be remembered that the invention of the telescope in 1609 altered the state of affairs by revealing many analogies between the earth and the planets, thereby changing the question from a purely academic one into a very real one of interest to everybody. Galileo had also tried to offer a physical proof of the earth's motion by his curious theory of the tides, which certainly damaged his case still more. The trial does not present many points of special interest apart from the personality of the accused and the cause he advocated. Many Protestant theologians of that day detested the Copernican doctrine just as cordially as the Inquisition did, but they lacked the power possessed by the latter.

In *L'Anthropologie*, vol. xxii., No. 6, L'Abbé H. Breuil and M. Cabre Aguilo contribute a valuable addition to their series of studies of Palæolithic man, under the title of "Les Peintures rupestres d'Espagne," describing a number of rock-paintings at the village of Albarracin, lying in the valley of the River Guadalaviar, which enters the Mediterranean Sea near the city of Valencia. The rough sketch of a primitive horse or pony, and coloured pictures of groups of cattle with their calves, are interesting. Still more remarkable figures in these groups are those of two men, one in black, the other in white, represented in the act of discharging arrows at some animals. They closely resemble figures of the same kind found in the Cogul Cave, and remove all doubts as to the significance of the latter.

We welcome the appearance, though belated, of the first number of *The Journal of Roman Studies*, the organ of the society started last year in cooperation with the flourishing Society for the Promotion of Hellenic Studies. The most important contribution is by Mrs. S. A. Strong, a series of notes, supplementary to the official catalogue, of the remarkable exhibition, illustrative of the provinces of the Roman Empire, at the Baths of Diocletian, Rome. The exhibition has proved so successful that the authorities announce that it will remain open until the end of next April. While other countries, in particular Austria-Hungary, have contributed splendid collections of Roman provincial antiquities, it is much to be regretted that, in comparison with Germania and Gallia, that of Britannia, the rich stores of Roman antiquities in which are little known to Continental scholars, makes such a poor display. If this new Roman society had been in working order, this reproach might have been avoided; but the official attitude to Roman antiquities is obvious from the consignment, some fourteen years ago, of the Romano-British collection in the British Museum to dark corridors and dirty, inaccessible basements in favour of the Rothschild collection. It is quite time that the authorities became convinced of the need of providing adequate accommodation for valuable objects of great interest to many British antiquaries.

In the Journal of the College of Agriculture, University of Tokyo, vol. i., No. 3, Takahashi and Satō discuss the maturing of the Japanese drink "saké," and find that this is brought about by one or more varieties of the yeast *S. anomalus* (now termed *Willia anomala*). Kurono has isolated an enzyme from both saké and beer yeasts which liberates ammonia from asparagin, and Yukawa describes two new Aspergillus fungi isolated from dried tunny fish.

In *The Quarterly Journal of Experimental Physiology* for December, 1911 (vol. iv., No. 4), Dr. K. Mackenzie details the results of an experimental investigation of the mechanism of milk secretion, with special reference to the action of animal extracts. He finds that the mammary gland is, as regards its secretory activity, not under the direct influence of the nervous system, and that many organs, *e.g.* the pituitary body, corpus luteum, pineal body, involuting uterus, and the lactating mammary gland itself possess hormones which are capable of stimulating the mammary gland to activity.

"Medicines: Ancient and Modern," is the subject of an interesting article by Dr. Oliver Davis in this month's *Knowledge*. Modern remedies are largely synthetical—built up on preconceived lines by the chemist in the laboratory. The stereo-configuration of an organic compound, *i.e.* the spatial arrangement of the component atoms and groups in the compound, profoundly modify the chemical and physiological properties of a compound. This is illustrated by reference to anilin. This is a benzene nucleus into which an amino group, NH_2, has been introduced. It is far too toxic to be of much value as a medicine, but by replacing one of the hydrogen atoms of the amino group by the acetyl radicle, $COCH_3$, we obtain acetanilide or antifebrin, a well-known useful and fairly safe remedy.

It seems to be established that Rocky Mountain spotted fever, a typhus-like disease occurring in limited districts in the United States, is conveyed by a tick (*Dermacentor venustus*). Bulletin No. 105 of the Bureau of Entymology, United States Department of Agriculture, is devoted to the bionomics of this tick, with special reference to its destruction. It is considered that systematic "dipping" of the domestic animals in the localities in which the tick is found would soon result in a very large reduction in its numbers. It is estimated that an expenditure of 23,692 dollars, spread over three years, would effect this, after which a very small annual expenditure, say 600 dollars, would suffice to prevent reinfestation.

No. 1879 of the Proceedings of the U.S. National Museum is devoted to an account, by Mr. L. J. Boettcher, of experiments which have been undertaken recently for the purpose of ascertaining the best means of preserving tusks, bones, and horns from decay and damage. Owing to desiccation, tusks of animals are exceedingly liable to crack and split after death, especially in hot and dry climates. This may be prevented by saturating them with paraffin, which may either be poured into the open end of the tusk or be imbibed by immersing the whole tusk for a certain period in a bath of melted paraffin.

Under the title of "The Public Utility of Museums," Lord Sudeley has issued in pamphlet form (Kingston-on-Thames: T. J. S. Guilford and Co., Ltd.) his letters to *The Times*, together with leading articles from that journal and other papers, on the subject of "personally conducted tours through our chief museums," a subject to which allusion has been previously made in our columns. Some of the difficulties experienced by the conductor of these peripatetic lectures at the British Museum are recorded at the end of the pamphlet, with suggested remedies. The idea of enlisting the services of amateurs to conduct these lectures would, we venture to think, prove unworkable.

In the February number of *The Museums Journal* it is stated that "the Duchess of Aosta, who is a proficient big-game shot, has sent to the Natural History Museum three fine skins of the East African giraffe, secured during her recent hunting expedition. The species was not previously represented in the collection, and it is intended to have one of the specimens mounted for exhibition." As a matter of fact, these skins, which are by no means fine, were not sent by the Duchess of Aosta, although the animals from which they were taken were shot by her Royal Highness; the species (*Giraffa reticulata*) has for several years been represented by a mounted head and neck in the east corridor of the museum, and there is no intention of mounting one of the specimens.

We have received a copy of a very interesting Guide to the Marine Aquarium at Madras, which was opened in October, 1909, and is now in full working order. The object of the aquarium is to provide an interesting display of the fishes and other marine vertebrates of Madras, and, at the same time, to furnish opportunities for their scientific study. The main entrance leads into a paved area with a central fresh-water pond, on either side of which are arranged five large tanks with glass fronts. The seaward side of the central area is occupied by a large open tank stocked with turtles, while smaller tanks are placed here and there for novelties and specimens of particular interest. The fish are captured by netting, but only a small proportion reach the aquarium, whence, once established there, they generally thrive. In one tank are exhibited both sea-snakes and fishes, and it is a remarkable fact that while none of the former have sought to attack the latter, several sea-snakes have been killed and eaten by fishes.

The first number of *The Kew Bulletin* for 1912 is largely devoted to an account of Sir Joseph Hooker. The veteran botanist's intimate association with Kew gives special colour to the sketch of his life, and another valuable feature of the present notice is the complete list of his works which is appended. The latter, which is arranged in chronological order, dates from 1837 to 1911.

Owing to the decision to give up the botanical section of *The Annals of Scottish Natural History*, a new journal entirely devoted to botany has made its appearance. The magazine, which is to include the Transactions of the Botanical Society of Edinburgh, is entitled *The Scottish Botanical Review*. It is edited by Mr. M'Taggart Cowan, jun., with the assistance of an editorial committee, and is to be issued quarterly (price 7*s*. 6*d*. per annum). The January number covers a wide field. The geological relations of staple and migratory plant-formations are dealt with by Mr. C. B. Crampton, and critical notes on British aquatics are contributed by Mr. Arthur Bennett. Notes on alien plants, new records, and ecological nomenclature as applied to marine algæ also find a place, whilst eight pages are given to reviews and book notices. The number further contains Dr. A. W. Borthwick's presidential address to the Botanical Society of Edinburgh on modern aspects of applied botany.

Among the useful operations of the International Institute of Agriculture at Rome is the publication of a monthly bulletin containing summaries of agricultural investigations. These are by far the most complete hitherto issued, and they must prove of great value to agricultural investigators, whose literature is always scattered and often inaccessible. The Bulletin is published in French and English at a low price, and can cordially be recommended to the agricultural colleges in this country.

The Live Stock Journal Almanac for 1912 contains, as usual, a history of the various breeds of stock during the past year, together with average prices and highest prices realised for pedigree animals. It is interesting to note that Great Britain still maintains its lead in live-stock breeding, and a very considerable amount of the prosperity of the agricultural community is bound up with the production of pedigree animals of high value. We read, for instance, of a young bull selling for 1050 guineas, whilst a calf sold for 1000 guineas; another bull fetched 720 guineas, while various others went for prices varying from 200 to 400 guineas.

A recent eruption of gas two miles off the south coast of Trinidad is described by Mr. Robert Anderson in *Science* for December 15, 1911. About three acres of blue mud were upheaved to some 30 ft. above the sea, and the gas thus formed a "crater of elevation." The locality lies on the prolongation of a line of similar gaseous activity in the island. The remarkable point about the eruption is that the gas became ignited on at least two occasions, the flames being visible fifty miles away. Mr. Anderson states that sparks have been struck from casings and tools of oil-wells by the impact of exploded boulders. He also suggests that electric phenomena, like those of Mt. Pelée, may have accompanied the eruption, and so have caused ignition.

A new Publication (No. 145) of the Carnegie Institution of Washington is devoted to the second part of Dr. E. C. Case's description and revision of the Permian Vertebrata of North America. This part deals with the Cotylosauria, which are generally regarded as the most primitive of known reptiles, ancestral to at least some later groups. After a brief historical summary, Dr. Case reviews all the named species in systematic order, and while quoting the original descriptions of the type specimens, adds critical remarks and new information wherever possible. He also occasionally proposes a new name himself, but it is evident that nearly all the specimens from the Permian of Texas—the chief source of the Cotylosauria proper—are too imperfect for exact determination. The late Prof. Cope's hasty method of giving names to battered fragments of bones and teeth from this formation is proved to have hindered and complicated the study of the reptiles to which they belong. One specimen, indeed, which Cope described as a skull with the external nostrils situated beneath the end of the snout (*Hypopnous squaliceps*), is now shown to be a normal skull with a second small skull, upside down, firmly adherent to the lower face of the snout and displaying its orbits, which were mistaken for the nostrils of the larger skull. Dr. Case's wide experience and careful work have enabled him to make the best use of such material, and his new memoir gives a very good general account of the osteology of the typical cotylosaurians. They seem to have been "harmless, sluggish, terrestrial herbivores, possibly fossorial in habit," and protected from their enemies by a more or less extensive bony armour.

We have occasionally directed attention to the steps taken by the U.S. Weather Bureau for utilising and popularising the data at its disposal. In looking through its useful meteorological charts for the current month, we find it stated that the Bureau has recently installed at the Custom House in New York City a large glass weather map, embracing the area included between longitude 10° E. and 130° W., and latitude 5° and 60° N. On this the telegraphic reports received each day from land stations and from vessels at sea are entered in their proper positions, and in special cases storm tracks are also shown. In obtaining this information the Bureau has the cooperation of the wireless services of the Navy Department and the Army Signal Corps. In connection with this map there are twelve large monthly charts on rollers, each showing the average values of the various elements, for a period of twenty to forty years, for each 5° of the North Atlantic and adjacent shores, together with tracks of hurricanes and other useful information. The installation will, no doubt, be much appreciated by underwriters, shipowners, and all persons interested in maritime meteorology.

The lecture on radio-telegraphy delivered by Prof. Howe before the Royal Society of Arts on January 31 is printed in the Journal of the society for February 2. It occupies a little more than nine pages, and gives in that small space a clear account of the fundamental principles of the subject which can be read and appreciated by anyone who has even an elementary knowledge of physical science. It does not leave the reader with a bare outline of the subject, but by means of oscillograph curves shows how in the appliances at present in use a train of waves as little damped as possible is secured, how these waves are sent in special directions, and, finally, how they are detected by the modern mineral contact type of instrument. Several important facts with regard to ease or difficulty of communication and possible interference in war time were brought out in the discussion which followed the lecture.

In the *Revue générale des Sciences* for January 30 Dr. L. Dunoyer has an article on magnetic exploration at sea and the progress of terrestrial magnetism during the first half of the nineteenth century. He shows, in the first instance, how the elementary theory that the magnetic poles of the earth were situated on the surface was disproved by the observed variation of the dip with latitude. By means of a chart of the lines of equal dip, as observed and as calculated on the assumption that terrestrial magnetism is due to a small central magnet, he next shows how nearly this supposition reproduces the actual facts. The theory of Gauss is then given and compared with the chart of lines of equal force given by Sabine, and founded mainly on the observations of Ross. Finally, he points out how, with the advance of time, the secular changes of the magnetic elements have introduced so many uncertainties that a new survey is necessary. Such a survey the Carnegie Institution is now carrying out.

In the current number (No. 23) of *Science Progress* a number of subjects of more than usual general scientific interest are dealt with. Sir Oliver Lodge discusses "The Æther of Space and the Principle of Relativity," and Dr. W. N. Shaw the "Structure of the Atmosphere and the Texture of Air Currents in Relation to the Problems of Aviation." Opposing views are taken in the two papers on "The Interpretation of Life" and "Vitalism," by F. Carrel and L. Doncaster respectively. Some novel experiments showing the part played by earthworms in aërating the soil are described by Dr. J. Newton Friend, more particularly as regards the rate of production by the worm of carbon dioxide. "Weeds: their Peculiarities and Distribution," by Dr. Brenchley, contains a summary of much recent work, whilst in a paper on the "Corrosion of Iron and other Metals," by Prof. Armstrong, two recent communications by Prof. W. R. Dunstan and Mr. J. R. Hill on the rusting of iron are discussed. In the latter paper the contention that the rusting of iron can be brought about by pure water and oxygen in the absence of acid is considered to be untenable, and even though "passivity" be induced by alkalis or oxidising agents, there is little doubt that in the ordinary process of rusting, carbon dioxide plays the necessary part of rendering the water a conductor, and thus establishing the conditions of electrical action.

In a recent communication Ravenna and Zamorani (Nature, November 2, 1911, p. 19) showed that certain seeds, which during germination produce hydrocyanic acid, have this power increased by exposure of the growing plant to light, and to an atmosphere of carbon dioxide, whereas the proportion of hydrogen cyanide is diminished by etiolation or excluding carbonic acid unless a carbohydrate, such as dextrose, is artificially supplied, when a considerable increase in its amount actually occurs even under these conditions. It was suggested that the hydrogen cyanide or cyanogenetic glucoside was formed probably by the action of inorganic nitrogen, possibly in the form of ammonia, on the carbohydrate. Experiments have since been made by Ravenna and Vecchi (*Atti dei Lincei*, vol. 20., ii., 491) on the development of hydrogen cyanide during the germination of seeds of Linum and Sorghum when small proportions of ammonium salts are present. In all cases the proportion of hydrogen cyanide formed was largely increased by the addition of 1 per cent. of ammonium chloride, as compared with seeds germinating in the presence of ordinary water alone. Hydrogen cyanide is not present in the case of Sorghum at the very commencement of germination, but only appears after a certain amount of growth has taken place and coincident with the first indication of chlorophyll. The proportion of the hydrogen cyanide gradually increases as the ammonia in the plant increases (the latter being estimated by Bosshardt's method), but in the earliest stages ammonia is present without there being any indication of hydrogen cyanide.

Dealing with the salving of submarine boat A 3, *Engineering* for February 16 states that the damage caused by the collision of this boat with the gunboat *Hazard* has been proved to be very serious. One of the rudders of the *Hazard* has been found jammed into the conning tower of the submarine boat, and the injury to the propeller disclosed when the gunboat was docked gives rise to the belief that it acted as a knife to rip the upper shell-plates of the submarine boat. These facts, supported by divers' observations, make it quite certain that no air-helmets or other appliances on board could have obviated the loss of life. Owing to the exposed position in which the A 3 lies, and to the heavy weather which has prevailed since the accident, lighters have been unable to carry out the salvage work. The task has now been handed over to the Anglo-Italian Salvage Company, which is adopting the procedure of supplying externally the buoyancy which the ship has lost by most, or all, of the compartments being flooded. A number of groups of air vessels of tubular type, each series consisting of nine rubber tubes secured at top and bottom to wooden frames fitted with the necessary valves, will be sunk by being filled with water. They will be secured to the ropes now lashed around the hull of the sunken boat, and then air will be forced through the top valves in order to drive the water from the tubes. It is hoped that the necessary buoyancy will be provided by this method.